

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of separate and distinct current supply modules each having an input terminal, an output terminal, and ~~[[a]]~~ its own control receptacle, the current supply modules connected such that each current supply unit has a single output connection that provides a maximum output power that is greater than the maximum output power of its individual current supply modules;

a control unit ~~connected to one of~~ plugged into the control ~~receptacles~~ receptacle of a first of the current supply modules, and movable to any of the control receptacles of the other current supply modules of the current supply unit; and

a data connection connecting all the current supply modules of the current supply unit to the control unit such that the control unit is able to control all of the current supply modules of the current supply unit through connection to any one control receptacle of the current supply modules of the current supply unit.

2. (Canceled)

3. (Original) The current supply system of claim 1, wherein the current supply modules are power converters.

4. (Original) The current supply system of claim 1, wherein the maximum output power of all the current supply modules is substantially the same.

5. (Original) The current supply system of claim 1, wherein a plurality of first current supply systems are electrically combined to form a first current supply unit having a first maximum power output and a plurality of second current supply systems are electrically combined to form a second current supply unit having a second maximum power output different from the first maximum power output.

6. (Currently Amended) The current supply system of claim 1, wherein a control receptacle receives the control unit, and wherein exactly one current supply module of each current supply unit receives the control unit.

7. (Original) The current supply system of claim 6, wherein the current supply module that receives the control unit is adapted for connection to an external controller.

8. (Original) The current supply system of claim 7, wherein the external controller is a computer.

9. (Original) The current supply system of claim 6, wherein the control unit is adapted for connection to an external controller.

10. (Original) The current supply system of claim 9, wherein the external controller is a computer.

11. (Original) The current supply system of claim 1, wherein each current supply module includes a measuring device for measuring a current supply module output quantity.

12. (Original) The current supply system of claim 11, wherein the output quantity is selected from the group consisting of a voltage, a current, and a power.

13. (Previously Presented) The current supply system of claim 11, wherein each measuring device includes a measuring component for measuring an analog output quantity and

converting the analog output quantity into a voltage, a signal matching circuit for converting the voltage from the respective measuring component, a voltage/current converter for converting the output voltage of the signal matching circuit into a current, and a resistor for generating a voltage drop.

14. (Currently amended) ~~The current supply system of claim 11,~~ A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of current supply modules each having an input terminal, an output terminal, and a control receptacle, the current supply modules connected such that each current supply unit has a maximum output power that is greater than the maximum output power of its individual current supply modules;

a control unit connected to one of the control receptacles and movable to any of the control receptacles of the other current supply modules of the current supply unit; and

a data connection connecting all the current supply modules of the current supply unit to the control unit such that the control unit is able to control all of the current supply modules of the current supply unit through connection to any one control receptacle of the current supply modules of the current supply unit, wherein each current supply module includes a measuring device for measuring a current supply module output quantity and wherein measuring signals of the current supply modules are supplied to the control unit of the current supply unit in parallel via the data connection.

15. (Original) The current supply system of claim 1, wherein the current supply system is disposed in a switching cabinet.

16. (Original) The current supply system of claim 1, wherein the current supply modules are current sources.

17. (Original) The current supply system of claim 1, further comprising an interlock circuit for the current supply unit, wherein the interlock circuit is adapted for connection to the current supply modules of the current supply unit.

18. (Currently amended) The current supply system of claim 1, further comprising:  
an output electrical conductor for electrically connecting the current supply modules of the current supply unit at an output side;

wherein the output electrical ~~connector~~ conductor electrically connects the output terminals of two neighboring current supply modules.

19. (Previously Presented) The current supply system of claim 18, wherein two or more current supply modules of the current supply unit are electrically connected at an input side.

20. (Original) The current supply system of claim 19, wherein all the current supply modules are electrically connected at the input side.

21. (Previously Presented) The current supply system of claim 18, further comprising an input electrical conductor that is identical in construction to the output electrical conductor.

22. (Currently amended) ~~The current supply system of claim 18,~~ A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of current supply modules each having an input terminal, an output terminal, and a control receptacle, the current supply modules connected such that each current supply unit has a maximum output power that is greater than the maximum output power of its individual current supply modules;

a control unit connected to one of the control receptacles and movable to any of the control receptacles of the other current supply modules of the current supply unit;

a data connection connecting all the current supply modules of the current supply unit to the control unit such that the control unit is able to control all of the current supply modules of the current supply unit through connection to any one control receptacle of the current supply modules of the current supply unit; and

an output electrical conductor for electrically connecting the current supply modules of the current supply unit at an output side,

wherein the output electrical conductor electrically connects the output terminals of two neighboring current supply modules and wherein the input terminal includes a plurality of connectors that correspond to a number of phases of a power line connection, and the output terminal includes two connectors, which are disposed in different conductor planes, and through which the conductors may be connected to corresponding connectors of neighboring current supply modules.

23. (Currently amended) The current supply system of claim 18, further comprising A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of current supply modules each having an input terminal, an output terminal, and a control receptacle, the current supply modules connected such that each current supply unit has a maximum output power that is greater than the maximum output power of its individual current supply modules;

a control unit connected to one of the control receptacles and movable to any of the control receptacles of the other current supply modules of the current supply unit;

a data connection connecting all the current supply modules of the current supply unit to the control unit such that the control unit is able to control all of the current supply modules of the current supply unit through connection to any one control receptacle of the current supply modules of the current supply unit;

an output electrical conductor for electrically connecting the current supply modules of the current supply unit at an output side; wherein the output electrical conductor electrically connects the output terminals of two neighboring current supply modules; and

insulative distribution elements for connecting the conductors with the terminals, wherein the distribution elements each comprise receptacles for receiving ends of the conductors.

24. (Currently amended) A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of substantially similar, separate, and distinct power converter modules having an input terminal, an output terminal, and [[a]] its own control receptacle, the power converter modules connected such that each current supply unit has a single output connection that provides a maximum output power that is greater than the maximum output power of its individual power converter modules;

a control unit ~~connected to one of~~ plugged into the control ~~receptacles~~ receptacle of a first of the current supply modules, and movable to any of the control receptacles of the other current supply modules of the current supply unit; and

a data connection connecting all the power converter modules of the current supply unit to the control unit such that the control unit is able to control all of the power converter modules of the current supply unit through connection to any one control receptacle of the power converter modules of the current supply unit; and

an output electrical conductor for electrically connecting the power converter modules of the current supply unit at an output side;

wherein the output electrical conductor ~~connector~~ electrically connects the output terminals of two neighboring power converter modules.

25. (Original) The current supply system of claim 24, wherein a plurality of first current supply systems are electrically combined to form a first current supply unit having a first maximum power output and a plurality of second current supply systems are electrically combined to form a second current supply unit having a second maximum power output different from the first maximum power output.

26. (Currently Amended) The current supply system of claim 24, wherein the control receptacle receives the control unit, and wherein exactly one power converter module of each current supply unit receives the control unit.

27. (Previously Presented) The current supply system of claim 26, wherein the power converter module that receives the control unit is adapted for connection to an external controller.

28. (Original) The current supply system of claim 27, wherein the external controller is a computer.

29. (Original) The current supply system of claim 26, wherein the control unit is adapted for connection to an external controller.

30. (Original) The current supply system of claim 29, wherein the external controller is a computer.

31. (Previously Presented) The current supply system of claim 24, wherein each power converter module includes a measuring device for measuring a power converter module output quantity.

32. (Original) The current supply system of claim 31, wherein the output quantity is selected from the group consisting of a voltage, a current, and a power.

33. (Previously Presented) The current supply system of claim 31, wherein each measuring device includes a measuring component for measuring an analog output quantity and converting the analog output quantity into a voltage, a signal matching circuit for converting the voltage from the respective measuring component, a voltage/current converter for converting the output voltage of the signal matching circuit into a current, and a resistor for generating a voltage drop.

34. (Currently amended) ~~The current supply system of claim 31,~~ A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of substantially similar power converter modules having an input terminal, an output terminal, and a control receptacle, the power converter modules connected such that each current supply unit has a maximum output power that is greater than the maximum output power of its individual power converter modules;

a control unit connected to one of the control receptacles and movable to any of the control receptacles of the other power converter modules of the current supply unit;

a data connection connecting all the power converter modules of the current supply unit to the control unit such that the control unit is able to control all of the power converter modules of the current supply unit through connection to any one control receptacle of the power converter modules of the current supply unit; and

an output electrical conductor for electrically connecting the power converter modules of the current supply unit at an output side;

wherein the output electrical conductor electrically connects the output terminals of two neighboring power converter modules, wherein each power converter module includes a measuring device for measuring a power converter module output quantity and wherein the measuring signals of the power converter modules are supplied to the control unit of the current supply unit in parallel via the data connection.

35. (Original) The current supply system of claim 24, wherein the current supply system is disposed in a switching cabinet.

36. (Previously Presented) The current supply system of claim 24, further comprising an interlock circuit for the current supply unit, wherein the interlock circuit is adapted for connection to the power converter modules of the current supply unit.



37. (Previously Presented) The current supply system of claim 24, wherein two or more power converter modules of the current supply unit are electrically connected at an input side.

38. (Previously Presented) The current supply system of claim 37, wherein all the power converter modules are electrically connected at the input side by an input electrical conductor that is identical in construction with the output electrical conductor.

39. (Previously Presented) The current supply system of claim 24, further comprising an input electrical conductor that is identical in construction to the output electrical conductor.

40. (Currently amended) ~~The current supply system of claim 24,~~ A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of substantially similar power converter modules having an input terminal, an output terminal, and a control receptacle, the power converter modules connected such that each current supply unit has a maximum output power that is greater than the maximum output power of its individual power converter modules;

a control unit connected to one of the control receptacles and movable to any of the control receptacles of the other power converter modules of the current supply unit;

a data connection connecting all the power converter modules of the current supply unit to the control unit such that the control unit is able to control all of the power converter modules of the current supply unit through connection to any one control receptacle of the power converter modules of the current supply unit; and

an output electrical conductor for electrically connecting the power converter modules of the current supply unit at an output side,

wherein the output electrical conductor electrically connects the output terminals of two neighboring power converter modules and wherein the input terminal includes a plurality of connectors that correspond to a number of phases of a power line connection, and the output terminal includes two connectors, which are disposed in different conductor planes, and through

which the conductors may be connected to corresponding connectors of neighboring power converter modules.

41. (Currently amended) The current supply system of claim 24, further comprising A current supply system for a plasma gas discharge application, the current supply system comprising one or more current supply units each comprising:

a plurality of substantially similar power converter modules having an input terminal, an output terminal, and a control receptacle, the power converter modules connected such that each current supply unit has a maximum output power that is greater than the maximum output power of its individual power converter modules;

a control unit connected to one of the control receptacles and movable to any of the control receptacles of the other power converter modules of the current supply unit;

a data connection connecting all the power converter modules of the current supply unit to the control unit such that the control unit is able to control all of the power converter modules of the current supply unit through connection to any one control receptacle of the power converter modules of the current supply unit;

an output electrical conductor for electrically connecting the power converter modules of the current supply unit at an output side; wherein the output electrical conductor electrically connects the output terminals of two neighboring power converter modules; and

insulative distribution elements for connecting the conductors with the terminals, wherein the distribution elements each comprise receptacles for receiving ends of the conductors.

42. (Currently Amended) A method of providing an electrical current to a plasma gas discharge application, the method comprising:

providing one or more separate and distinct current supply units each comprising a plurality of current supply modules each having an input terminal, an output terminal, and [[a]] its own control receptacle, each current supply module has a maximum output power;

establishing an electrical connection between the current supply modules of the current supply unit such that each current supply unit has a single output connection that provides a

maximum output power that is greater than the maximum output power of its individual current supply modules;

~~connecting plugging~~ a control unit ~~to one of~~ into the control ~~receptacles~~ receptacle of a first of the current supply modules, wherein the control unit is movable to any of the control receptacles of the other current supply modules of the current supply unit;

controlling the current supply unit with the control unit;

connecting all of the current supply modules of the current supply unit to the control unit such that the control unit is able to control all of the current supply modules of the current supply unit through connection to any one control receptacle of the current supply modules of the current supply unit; and

~~providing outputting~~ the output power of the current supply unit ~~to a plasma load of a plasma gas discharge application.~~

43. (Original) The method of claim 42, further comprising:

establishing an electrical connection between multiple first current supply modules to form a first current supply unit having a first maximum power output; and

establishing an electrical connection between multiple second current supply modules to form a second current supply unit having a second maximum power output different from the first maximum power output.

44. (Previously Presented) The current supply system of claim 18, wherein the output electrical conductor is a conductor rail.

45. (Previously Presented) The current supply system of claim 24, wherein the output electrical conductor is a conductor rail.

46. (Previously Presented) The method of claim 42, further comprising inserting the control unit into only one of the current supply modules.

47. (Currently Amended) The method of claim 42, further comprising inserting the control unit into the control receptacle of a current supply module.

48. (Previously Presented) The method of claim 42, further comprising electrically connecting two neighboring current supply modules of the current supply unit at an output side with an output electrical conductor.

49. (Previously Presented) The method of claim 48, further comprising electrically connecting two neighboring current supply modules of the current supply unit at an input side with an input electrical conductor.

50. (Previously Presented) The method of claim 43, further comprising reconfiguring the established electrical connection between the multiple first current supply modules to form the first current supply unit having another first maximum power output that is different from the first maximum power output.

51. (Previously Presented) The method of claim 50, wherein reconfiguring comprises changing the electrical connection between the multiple first current supply modules.

52. (New) The current supply system of claim 1, wherein the control unit and the first current supply module form a master current supply module that includes a connection between the control unit and the first current supply module for controlling the first current supply module through the control unit, and the control unit when moved to another of the control receptacles of the other current supply modules of the current supply unit forms a master current supply module with that current supply module.